Monopoly Simulation Report

Summary

The simulation of Monopoly was coded in Python. A system of Object Oriented Programming was used to implement classes and functions that mimic best the board used in Monopoly. It simulates the moves and keeps track of the number of moves made, as well as where the player landed. It also implements Get Out of Jail Free Cards, which are one of the options in both the Community Chest and Chance decks of cards. Although not necessary for this project, all the CC and Chance cards work as they would in the real game, moving the player occasionally, or adding or subtracting money, as well as distributing the Get Out of Jail Free cards. This was done to enhance the accuracy of the simulation. The decks are used up and then shuffled, just like in real play.

The data for n iterations were collected for the number of times landed on a space, and the corresponding percentage. The data is contained in the last section of this document.

Question Responses

The analysis of jail escape strategy A involved observing how the percentages of landing on each property changed with different values of n. As n increased, the percentages of landing on most properties stabilized. This indicated that higher values of n resulted in more consistent landing probabilities across the board.

Upon examining whether the probabilities converged between runs, it was observed that similar outcomes occurred across all iterations. The probabilities became stable, with percentages becoming very similar to each other across all ten iterations in the data concerning strategy A.

Further investigation sought to determine if there was a specific value of n that always produced nearly identical probabilities. It was found that certain squares were more likely to be landed on, such as jail. The jail square has multiple entry points, including the Go To Jail space, rolling triple doubles, or drawing a Community Chest or Chance card that sends a player to jail. This led to results showing that jail was about twice as likely to be landed on as any other individual property. The stabilization of results was more pronounced as n approached 1,000,000.

When comparing the two jail escape strategies (strategy A and strategy B) with n set to one million, the simulation revealed no significant differences in the overall probabilities of landing on most spaces. This suggested that the choice between strategies A and B did not materially impact the likelihood of landing on various board spaces.

The simulation was initially implemented for a single player. Considering whether the answers to the previous questions would change if the number of players increased, it was hypothesized that the results would remain largely unaffected. This is because Monopoly contains few moves that allow one player to influence the position of another player on the board. The number of players does not alter the probabilities associated with rolling any given number on the dice, nor does it affect the chance of landing on specific squares. Thus, the simulation's outcomes are expected to remain consistent regardless of the number of players involved.

	Strategy A, Iteration 1											
	n=	1,000	n=	10,000	n=:	100,000	n=1	,000,000				
Square	Landed	%	Landed	%	Landed	%	Landed	%				
Go	30	2.930	313	3.041	3086	3.008	31126	3.033				
Mediterranean Avenue	21	2.051	211	2.050	2124	2.070	21318	2.078				
Community Chest1	19	1.855	183	1.778	1953	1.904	18973	1.849				
Baltic Avenue	18	1.758	225	2.186	2187	2.132	21881	2.132				
Income Tax	28	2.734	218	2.118	2389	2.329	23585	2.299				
Reading Railroad	23	2.246	264	2.565	2817	2.746	27284	2.659				
Oriental Avenue	20	1.953	210	2.040	2273	2.216	23060	2.247				
Chance1	10	0.977	124	1.205	1212	1.181	12266	1.195				
Vermont Avenue	18	1.758	251	2.438	2328	2.269	23146	2.256				
Connecticut Avenue	21	2.051	242	2.351	2239	2.183	23226	2.264				
Jail	70	6.836	647	6.285	6294	6.135	62526	6.094				
St. Charles Place	23	2.246	243	2.361	2587	2.522	25848	2.519				
Electric Company	28	2.734	242	2.351	2517	2.454	25098	2.446				
States Avenue	32	3.125	255	2.477	2434	2.373	24342	2.372				
Virginia Avenue	20	1.953	257	2.497	2478	2.416	24783	2.415				
Pennsylvania Railroad	27	2.637	274	2.662	2817	2.746	28074	2.736				
St. James Place	33	3.223	279	2.710	2763	2.693	28014	2.730				
Community Chest2	26	2.539	243	2.361	2561	2.496	26175	2.551				
Tennessee Avenue	28	2.734	304	2.953	2893	2.820	29479	2.873				
New York Avenue	27	2.637	304	2.953	3085	3.007	30744	2.996				
Free Parking	27	2.637	301	2.924	2828	2.757	28708	2.798				
Kentucky Avenue	34	3.320	297	2.885	2889	2.816	27930	2.722				
Chance2	14	1.367	116	1.127	1262	1.230	12805	1.248				
Indiana Avenue	32	3.125	275	2.671	2726	2.657	27296	2.660				
Illinois Avenue	30	2.930	281	2.730	2859	2.787	28478	2.775				
B&O Railroad	25	2.441	296	2.875	2923	2.849	29043	2.830				
Atlantic Avenue	21	2.051	306	2.973	2652	2.585	26942	2.626				
Ventnor Avenue	24	2.344	234	2.273	2656	2.589	26860	2.618				
Water Works	30	2.930	309	3.002	3011	2.935	29641	2.889				
Marvin Gardens	25	2.441	242	2.351	2634	2.568	25582	2.493				
Go To Jail	23	2.246	293	2.846	2586	2.521	26079	2.542				
Pacific Avenue	25	2.441	255	2.477	2686	2.618	26241	2.557				
North Carolina Avenue	31	3.027	274	2.662	2530	2.466	25605	2.495				
Community Chest3	31	3.027	240	2.331	2362	2.302	23732	2.313				
Pennsylvania Avenue	25	2.441	250	2.429	2479	2.416	25044	2.441				
Short Line	26	2.539	243	2.361	2578	2.513	25689	2.504				
Chance3	7	0.684	88	0.855	915	0.892	9276	0.904				
Park Place	20	1.953	201	1.953	2160	2.106	21791	2.124				
Luxury Tax	19	1.855	223	2.166	2210	2.154	21790	2.124				
Boardwalk	33	3.223	281	2.730	2604	2.538	26600	2.592				

				, Iteratio				
	1	1,000		10,000		100,000		L,000,000
Square	Landed	%	Landed	%	Landed	%	Landed	%
Go	26	2.532	287	2.802	3123	3.044	31102	3.031
Mediterranean Avenue	25	2.434	209	2.040	2166	2.111	21369	2.083
Community Chest1	23	2.240	192	1.874	1833	1.787	18854	1.837
Baltic Avenue	24	2.337	225	2.197	2194	2.138	21713	2.116
Income Tax	15	1.461	241	2.353	2376	2.316	23674	2.307
Reading Railroad	37	3.603	309	3.017	2709	2.640	27538	2.684
Oriental Avenue	19	1.850	215	2.099	2379	2.319	22969	2.239
Chance1	15	1.461	120	1.172	1207	1.176	12470	1.215
Vermont Avenue	20	1.947	233	2.275	2317	2.258	23329	2.274
Connecticut Avenue	23	2.240	215	2.099	2330	2.271	22794	2.221
Jail	58	5.648	600	5.858	6162	6.006	62631	6.104
St. Charles Place	28	2.726	267	2.607	2575	2.510	25629	2.498
Electric Company	29	2.824	252	2.460	2501	2.438	24984	2.435
States Avenue	23	2.240	247	2.411	2444	2.382	23947	2.334
Virginia Avenue	20	1.947	251	2.450	2609	2.543	25082	2.444
Pennsylvania Railroad	25	2.434	268	2.616	2889	2.816	28057	2.734
St. James Place	29	2.824	279	2.724	2764	2.694	28288	2.757
Community Chest2	22	2.142	240	2.343	2575	2.510	25947	2.529
Tennessee Avenue	41	3.992	277	2.704	2930	2.856	29096	2.836
New York Avenue	21	2.045	333	3.251	3084	3.006	30808	3.002
Free Parking	34	3.311	295	2.880	2865	2.792	28635	2.791
Kentucky Avenue	27	2.629	290	2.831	2732	2.663	28295	2.758
Chance2	16	1.558	131	1.279	1284	1.251	12861	1.253
Indiana Avenue	23	2.240	251	2.450	2775	2.705	27138	2.645
Illinois Avenue	27	2.629	250	2.441	2912	2.838	28566	2.784
B&O Railroad	40	3.895	293	2.860	2917	2.843	29074	2.833
Atlantic Avenue	28	2.726	298	2.909	2626	2.560	27264	2.657
Ventnor Avenue	13	1.266	253	2.470	2661	2.594	26572	2.590
Water Works	28	2.726	296	2.890	2916	2.842	29505	2.875
Marvin Gardens	29	2.824	260	2.538	2646	2.579	25740	2.509
Go To Jail	26	2.532	242	2.363	2597	2.531	26087	2.542
Pacific Avenue	27	2.629	257	2.509	2608	2.542	26295	2.563
North Carolina Avenue	29	2.824	297	2.900	2513	2.449	25822	2.517
Community Chest3	21	2.045	216	2.109	2350	2.290	23556	2.296
Pennsylvania Avenue	25	2.434	276	2.695	2559	2.494	24702	2.407
Short Line	26	2.532	252	2.460	2448	2.386	25769	2.511
Chance3	7	0.682	89	0.869	981	0.956	9253	0.902
Park Place	26	2.532	211	2.060	2202	2.146	21943	2.139
Luxury Tax	18	1.753	230	2.245	2206	2.150	21845	2.129
Boardwalk	34	3.311	296	2.890	2633	2.566	26885	

				, Iteratio				
		1,000		10,000		100,000		,000,000
Square	Landed	%	Landed	%	Landed	%	Landed	%
Go	31	3.016	314	3.065	3153	3.073	30998	3.021
Mediterranean Avenue	23	2.237	219	2.138	2103	2.049	21753	2.120
Community Chest1	19	1.848	164	1.601	1934	1.885	18862	1.839
Baltic Avenue	21	2.043	219	2.138	2194	2.138	22022	2.147
Income Tax	24	2.335	258	2.518	2399	2.338	23618	2.302
Reading Railroad	28	2.724	278	2.714	2705	2.636	27367	2.668
Oriental Avenue	18	1.751	210	2.050	2305	2.246	22633	2.206
Chance1	6	0.584	139	1.357	1215	1.184	12499	1.218
Vermont Avenue	28	2.724	230	2.245	2343	2.283	23428	2.284
Connecticut Avenue	24	2.335	231	2.255	2347	2.287	23184	2.260
Jail	64	6.226	609	5.944	6254	6.095	62250	6.068
St. Charles Place	31	3.016	264	2.577	2620	2.553	25985	2.533
Electric Company	26	2.529	248	2.421	2556	2.491	24947	2.432
States Avenue	22	2.140	240	2.343	2396	2.335	24040	2.343
Virginia Avenue	22	2.140	260	2.538	2509	2.445	25283	2.464
Pennsylvania Railroad	28	2.724	318	3.104	2807	2.736	28216	2.750
St. James Place	35	3.405	267	2.606	2809	2.737	27752	2.705
Community Chest2	20	1.946	243	2.372	2559	2.494	26099	2.544
Tennessee Avenue	32	3.113	289	2.821	2917	2.843	29079	2.834
New York Avenue	35	3.405	296	2.889	3087	3.008	30674	2.990
Free Parking	25	2.432	287	2.801	2885	2.812	28644	2.792
Kentucky Avenue	38	3.696	306	2.987	2796	2.725	28150	2.744
Chance2	17	1.654	137	1.337	1260	1.228	13008	1.268
Indiana Avenue	18	1.751	281	2.743	2780	2.709	27140	2.645
Illinois Avenue	25	2.432	258	2.518	2846	2.774	28685	2.796
B&O Railroad	22	2.140	270	2.635	2874	2.801	29053	2.832
Atlantic Avenue	22	2.140	275	2.684	2769	2.699	26902	2.622
Ventnor Avenue	31	3.016	266	2.596	2675	2.607	26454	2.579
Water Works	39	3.794	321	3.133	2852	2.779	29473	2.873
Marvin Gardens	28	2.724	250	2.440	2547	2.482	25866	2.521
Go To Jail	27	2.626	244	2.382	2611	2.545	25937	2.528
Pacific Avenue	19	1.848	265	2.587	2617	2.550	26246	2.558
North Carolina Avenue	21	2.043	251	2.450	2625	2.558	26112	2.545
Community Chest3	26	2.529	262	2.557	2338	2.278	23556	2.296
Pennsylvania Avenue	29	2.821	236	2.304	2527	2.463	25081	2.445
Short Line	28	2.724	255	2.489	2541	2.476	25567	2.492
Chance3	8	0.778	97	0.947	900	0.877	9235	0.900
Park Place	21	2.043	209	2.040	2222	2.165	21757	2.121
Luxury Tax	17	1.654	203	1.981	2185	2.129	21721	2.117
Boardwalk	30	2.918	276	2.694	2550	2.485	26662	2.599

				, Iteratio					
		1,000		10,000		100,000		1,000,000	
Square	Landed	%	Landed	%	Landed	%	Landed	%	
Go	37	3.606	314	3.055	3118	3.039	31188	3.040	
Mediterranean Avenue	20	1.949	212	2.063	2127	2.073	21604	2.106	
Community Chest1	21	2.047	187	1.819	1835	1.789	18923	1.844	
Baltic Avenue	21	2.047	240	2.335	2194	2.139	21585	2.104	
Income Tax	15	1.462	225	2.189	2392	2.332	23666	2.307	
Reading Railroad	23	2.242	267	2.598	2758	2.688	27228	2.654	
Oriental Avenue	30	2.924	225	2.189	2351	2.292	22712	2.214	
Chance1	10	0.975	127	1.236	1251	1.219	12620	1.230	
Vermont Avenue	19	1.852	227	2.209	2281	2.223	23469	2.287	
Connecticut Avenue	25	2.437	246	2.393	2320	2.261	23134	2.255	
Jail	64	6.238	639	6.217	6245	6.087	62570	6.098	
St. Charles Place	23	2.242	236	2.296	2608	2.542	26026	2.537	
Electric Company	22	2.144	250	2.432	2443	2.381	24760	2.413	
States Avenue	34	3.314	265	2.578	2340	2.281	24009	2.340	
Virginia Avenue	27	2.632	247	2.403	2541	2.477	24797	2.417	
Pennsylvania Railroad	34	3.314	272	2.646	2793	2.722	28295	2.758	
St. James Place	27	2.632	247	2.403	2955	2.880	27860	2.715	
Community Chest2	29	2.827	256	2.491	2573	2.508	26155	2.549	
Tennessee Avenue	27	2.632	295	2.870	2917	2.843	29213	2.847	
New York Avenue	25	2.437	320	3.113	3048	2.971	30735	2.996	
Free Parking	35	3.411	291	2.831	2847	2.775	28437	2.772	
Kentucky Avenue	18	1.754	269	2.617	2781	2.711	28204	2.749	
Chance2	20	1.949	122	1.187	1335	1.301	12867	1.254	
Indiana Avenue	27	2.632	311	3.026	2793	2.722	27322	2.663	
Illinois Avenue	24	2.339	301	2.929	2813	2.742	28690	2.796	
B&O Railroad	29	2.827	290	2.822	2859	2.787	28912	2.818	
Atlantic Avenue	25	2.437	245	2.384	2689	2.621	26944	2.626	
Ventnor Avenue	24	2.339	267	2.598	2688	2.620	26677	2.600	
Water Works	38	3.704	286	2.783	2985	2.910	29688	2.894	
Marvin Gardens	32	3.119	259	2.520	2501	2.438	25646	2.500	
Go To Jail	25	2.437	277	2.695	2592	2.526	26020	2.536	
Pacific Avenue	21	2.047	285	2.773	2639	2.572	26399	2.573	
North Carolina Avenue	19	1.852	246	2.393	2536	2.472	25614	2.496	
Community Chest3	26	2.534	233	2.267	2394	2.333	23601	2.300	
Pennsylvania Avenue	27	2.632	243	2.364	2480	2.417	24752	2.412	
Short Line	29	2.827	260	2.530	2564	2.499	25648	2.500	
Chance3	9	0.877	89	0.866	908	0.885	9227	0.899	
Park Place	20	1.949	222	2.160	2181	2.126	21820	2.127	
Luxury Tax	15	1.462	219	2.131	2201	2.145	22211	2.165	
Boardwalk	30	2.924	266	2.588	2717	2.648	26793	2.611	

				, Iteratio					
		1,000		10,000		100,000		,000,000	
Square	Landed	%	Landed	%	Landed	%	Landed	%	
Go	26	2.544	304	2.963	3123	3.043	31171	3.038	
Mediterranean Avenue	23	2.250	228	2.222	2136	2.081	21451	2.090	
Community Chest1	16	1.566	198	1.930	1901	1.852	19118	1.863	
Baltic Avenue	24	2.348	227	2.212	2147	2.092	21648	2.110	
Income Tax	25	2.446	216	2.105	2355	2.295	23717	2.311	
Reading Railroad	29	2.838	267	2.602	2766	2.695	27027	2.634	
Oriental Avenue	22	2.153	241	2.349	2224	2.167	23036	2.245	
Chance1	10	0.978	117	1.140	1232	1.201	12450	1.213	
Vermont Avenue	25	2.446	241	2.349	2364	2.304	23267	2.267	
Connecticut Avenue	18	1.761	234	2.280	2266	2.208	23155	2.256	
Jail	62	6.067	604	5.886	6336	6.174	62396	6.080	
St. Charles Place	25	2.446	292	2.846	2638	2.571	25760	2.510	
Electric Company	23	2.250	241	2.349	2527	2.462	24821	2.419	
States Avenue	26	2.544	235	2.290	2357	2.297	24171	2.355	
Virginia Avenue	29	2.838	244	2.378	2483	2.420	25278	2.463	
Pennsylvania Railroad	33	3.229	269	2.622	2809	2.737	28067	2.735	
St. James Place	25	2.446	281	2.739	2745	2.675	28153	2.744	
Community Chest2	20	1.957	251	2.446	2638	2.571	25978	2.532	
Tennessee Avenue	24	2.348	317	3.089	2872	2.799	29073	2.833	
New York Avenue	29	2.838	296	2.885	3073	2.995	30878	3.009	
Free Parking	36	3.523	283	2.758	2904	2.830	28717	2.798	
Kentucky Avenue	26	2.544	290	2.826	2820	2.748	27801	2.709	
Chance2	7	0.685	136	1.325	1279	1.246	12711	1.239	
Indiana Avenue	25	2.446	273	2.661	2764	2.693	27478	2.678	
Illinois Avenue	37	3.620	266	2.592	2871	2.798	28953	2.821	
B&O Railroad	35	3.425	328	3.197	2883	2.809	28944	2.821	
Atlantic Avenue	23	2.250	267	2.602	2726	2.656	26992	2.630	
Ventnor Avenue	27	2.642	285	2.778	2677	2.609	26818	2.613	
Water Works	31	3.033	288	2.807	2927	2.852	29508	2.876	
Marvin Gardens	29	2.838	246	2.397	2606	2.539	25634	2.498	
Go To Jail	21	2.055	260	2.534	2619	2.552	26170	2.550	
Pacific Avenue	22	2.153	269	2.622	2701	2.632	26521	2.584	
North Carolina Avenue	25	2.446	246	2.397	2547	2.482	25884	2.522	
Community Chest3	26	2.544	232	2.261	2319	2.260	23308	2.271	
Pennsylvania Avenue	22	2.153	253	2.466	2495	2.431	24912	2.428	
Short Line	33	3.229	259	2.524	2606	2.539	25750	2.509	
Chance3	12	1.174	86	0.838	917	0.894	9101	0.887	
Park Place	22	2.153	239	2.329	2172	2.117	21972	2.141	
Luxury Tax	18	1.761	210	2.047	2108	2.054	21950	2.139	
Boardwalk	31	3.033	242	2.358	2687	2.618	26432	2.576	

				, Iteratio			I	
	· ·	1,000		10,000		100,000		L,000,000
Square	Landed	%	Landed	%	Landed	%	Landed	%
Go	31	3.016	299	2.913	3136	3.057	31225	3.042
Mediterranean Avenue	24	2.335	229	2.231	2108	2.055	21347	2.080
Community Chest1	22	2.140	170	1.656	1849	1.802	19063	1.857
Baltic Avenue	22	2.140	241	2.348	2234	2.178	21870	2.131
Income Tax	27	2.626	225	2.192	2244	2.187	23563	2.296
Reading Railroad	34	3.307	256	2.494	2792	2.721	27200	2.650
Oriental Avenue	14	1.362	238	2.319	2280	2.222	22957	2.237
Chance1	9	0.875	124	1.208	1273	1.241	12505	1.218
Vermont Avenue	28	2.724	232	2.260	2245	2.188	23223	2.263
Connecticut Avenue	19	1.848	234	2.280	2359	2.299	23179	2.258
Jail	62	6.031	615	5.991	6302	6.143	62813	6.120
St. Charles Place	33	3.210	300	2.923	2588	2.523	25927	2.526
Electric Company	30	2.918	249	2.426	2485	2.422	24800	2.416
States Avenue	22	2.140	237	2.309	2434	2.372	24151	2.353
Virginia Avenue	25	2.432	243	2.367	2490	2.427	25087	2.444
Pennsylvania Railroad	21	2.043	299	2.913	2838	2.766	28038	2.732
St. James Place	28	2.724	298	2.903	2717	2.648	28318	2.759
Community Chest2	21	2.043	269	2.621	2679	2.611	26145	2.547
Tennessee Avenue	37	3.599	293	2.854	2901	2.828	29302	2.855
New York Avenue	30	2.918	307	2.991	3023	2.947	30688	2.990
Free Parking	31	3.016	297	2.893	2889	2.816	28310	2.758
Kentucky Avenue	24	2.335	265	2.582	2856	2.784	28145	2.742
Chance2	15	1.459	123	1.198	1290	1.257	12886	1.255
Indiana Avenue	29	2.821	277	2.698	2746	2.677	27413	2.671
Illinois Avenue	24	2.335	278	2.708	2865	2.793	28621	2.789
B&O Railroad	37	3.599	286	2.786	2880	2.807	29083	2.834
Atlantic Avenue	32	3.113	281	2.737	2699	2.631	26751	2.606
Ventnor Avenue	20	1.946	268	2.611	2703	2.635	26641	2.596
Water Works	32	3.113	303	2.952	2920	2.846	29563	2.880
Marvin Gardens	23	2.237	217	2.114	2568	2.503	25921	2.525
Go To Jail	27	2.626	264	2.572	2593	2.527	26377	2.570
Pacific Avenue	19	1.848	280	2.728	2583	2.518	26285	2.561
North Carolina Avenue	19	1.848	255	2.484	2672	2.604	25661	2.500
Community Chest3	26	2.529	234	2.280	2408	2.347	23434	2.283
Pennsylvania Avenue	35	3.405	252	2.455	2378	2.318	24656	2.402
Short Line	20	1.946	262	2.552	2534	2.470	25747	2.509
Chance3	14	1.362	94	0.916	929	0.906	9132	0.890
Park Place	23	2.237	208	2.026	2235	2.178	21729	2.117
Luxury Tax	22	2.140	202	1.968	2134	2.080	21887	2.132
Boardwalk	17	1.654	261	2.543	2735	2.666	26735	2.605

		Stra	tegy A	, Iteratio	n 7			
	n=	1,000	n=	10,000	n=	100,000	n=1	,000,000
Square	Landed	%	Landed	%	Landed	%	Landed	%
Go	34	3.295	299	2.915	3068	2.987	31505	3.071
Mediterranean Avenue	15	1.453	227	2.213	2201	2.143	21492	2.095
Community Chest1	16	1.550	198	1.930	1853	1.804	19066	1.858
Baltic Avenue	21	2.035	196	1.911	2252	2.193	21804	2.125
Income Tax	30	2.907	241	2.349	2345	2.283	23584	2.299
Reading Railroad	31	3.004	269	2.622	2692	2.621	27288	2.660
Oriental Avenue	16	1.550	245	2.388	2342	2.280	22818	2.224
Chance1	14	1.357	124	1.209	1179	1.148	12455	1.214
Vermont Avenue	22	2.132	227	2.213	2340	2.278	23059	2.247
Connecticut Avenue	22	2.132	242	2.359	2281	2.221	23289	2.270
Jail	67	6.492	625	6.092	6353	6.185	62442	6.086
St. Charles Place	25	2.422	259	2.525	2626	2.557	26070	2.541
Electric Company	24	2.326	239	2.330	2470	2.405	24768	2.414
States Avenue	24	2.326	223	2.174	2451	2.386	24152	2.354
Virginia Avenue	20	1.938	248	2.417	2503	2.437	25044	2.441
Pennsylvania Railroad	41	3.973	300	2.924	2820	2.746	28019	2.731
St. James Place	24	2.326	286	2.788	2785	2.711	27968	2.726
Community Chest2	30	2.907	279	2.720	2583	2.515	26089	2.543
Tennessee Avenue	28	2.713	319	3.109	2989	2.910	29384	2.864
New York Avenue	31	3.004	316	3.080	3076	2.995	30505	2.973
Free Parking	28	2.713	241	2.349	2826	2.751	28597	2.787
Kentucky Avenue	27	2.616	290	2.827	2813	2.739	27985	2.728
Chance2	16	1.550	135	1.316	1332	1.297	12937	1.261
Indiana Avenue	26	2.519	254	2.476	2724	2.652	27260	2.657
Illinois Avenue	28	2.713	265	2.583	2877	2.801	28613	2.789
B&O Railroad	31	3.004	278	2.710	2815	2.741	28754	2.802
Atlantic Avenue	29	2.810	286	2.788	2747	2.674	27145	2.646
Ventnor Avenue	30	2.907	249	2.427	2641	2.571	26637	2.596
Water Works	23	2.229	299	2.915	2940	2.862	29667	2.891
Marvin Gardens	33	3.198	257	2.505	2565	2.497	25706	2.505
Go To Jail	31	3.004	258	2.515	2711	2.639	26027	2.537
Pacific Avenue	23	2.229	258	2.515	2569	2.501	26143	2.548
North Carolina Avenue	21	2.035	261	2.544	2575	2.507	25936	2.528
Community Chest3	28	2.713	232	2.261	2320	2.259	23726	2.312
Pennsylvania Avenue	23	2.229	256	2.495	2573	2.505	24824	2.419
Short Line	27	2.616	259	2.525	2581	2.513	25870	2.521
Chance3	15	1.453	77	0.751	940	0.915	9216	0.898
Park Place	13	1.260	234	2.281	2161	2.104	21783	2.123
Luxury Tax	20	1.938	244	2.378	2108	2.052	21825	2.127
Boardwalk	25	2.422	264	2.573	2685	2.614	26576	2.590

				, Iteratio				
		1,000		10,000		100,000		,000,000
Square	Landed	%	Landed	%	Landed	%	Landed	%
Go	29	2.810	318	3.101	3082	3.001	30914	3.013
Mediterranean Avenue	16	1.550	221	2.155	2209	2.151	21467	2.092
Community Chest1	14	1.357	192	1.872	1856	1.807	19250	1.876
Baltic Avenue	24	2.326	199	1.941	2255	2.196	21561	2.101
Income Tax	31	3.004	236	2.301	2391	2.328	23692	2.309
Reading Railroad	26	2.519	281	2.740	2644	2.574	27442	2.674
Oriental Avenue	29	2.810	226	2.204	2199	2.141	22770	2.219
Chance1	12	1.163	114	1.112	1261	1.228	12492	1.217
Vermont Avenue	19	1.841	217	2.116	2333	2.272	23276	2.268
Connecticut Avenue	24	2.326	262	2.555	2373	2.311	23365	2.277
Jail	63	6.105	622	6.065	6295	6.129	62755	6.116
St. Charles Place	29	2.810	257	2.506	2549	2.482	25765	2.511
Electric Company	22	2.132	235	2.292	2483	2.418	24799	2.417
States Avenue	24	2.326	251	2.448	2383	2.320	23949	2.334
Virginia Avenue	22	2.132	248	2.418	2531	2.464	25190	2.455
Pennsylvania Railroad	30	2.907	278	2.711	2816	2.742	28208	2.749
St. James Place	31	3.004	266	2.594	2850	2.775	28146	2.743
Community Chest2	26	2.519	263	2.565	2603	2.534	25951	2.529
Tennessee Avenue	33	3.198	289	2.818	2901	2.825	29336	2.859
New York Avenue	29	2.810	306	2.984	3094	3.013	30722	2.994
Free Parking	31	3.004	301	2.935	2846	2.771	28523	2.780
Kentucky Avenue	19	1.841	300	2.925	2846	2.771	28288	2.757
Chance2	16	1.550	130	1.268	1308	1.274	12810	1.248
Indiana Avenue	36	3.488	239	2.331	2698	2.627	27035	2.635
Illinois Avenue	29	2.810	280	2.730	2898	2.822	28769	2.804
B&O Railroad	20	1.938	320	3.120	2943	2.866	29171	2.843
Atlantic Avenue	24	2.326	278	2.711	2641	2.571	26951	2.627
Ventnor Avenue	39	3.779	251	2.448	2692	2.621	26653	2.597
Water Works	27	2.616	301	2.935	2954	2.876	29697	2.894
Marvin Gardens	20	1.938	271	2.643	2577	2.509	25547	2.490
Go To Jail	31	3.004	254	2.477	2702	2.631	26113	2.545
Pacific Avenue	28	2.713	267	2.604	2616	2.547	26111	2.545
North Carolina Avenue	24	2.326	247	2.409	2523	2.457	25735	2.508
Community Chest3	25	2.422	255	2.487	2397	2.334	23834	2.323
Pennsylvania Avenue	20	1.938	235	2.292	2492	2.426	24605	2.398
Short Line	29	2.810	244	2.379	2560	2.493	25527	2.488
Chance3	8	0.775	94	0.917	907	0.883	9179	0.895
Park Place	23	2.229	219	2.136	2136	2.080	21895	2.134
Luxury Tax	24	2.326	218	2.126	2152	2.095	21972	2.141
, Boardwalk	26	2.519	270	2.633	2707	2.636		

				, Iteratio				
		1,000		10,000		100,000		,000,000
Square	Landed	%	Landed	%	Landed	%	Landed	%
Go	32	3.104	313	3.045	3113	3.032	31141	3.036
Mediterranean Avenue	15	1.455	190	1.849	2122	2.067	21329	2.079
Community Chest1	11	1.067	186	1.810	1909	1.859	18849	1.837
Baltic Avenue	24	2.328	209	2.033	2163	2.107	22071	2.152
Income Tax	27	2.619	243	2.364	2333	2.272	23733	2.314
Reading Railroad	36	3.492	271	2.637	2777	2.705	27430	2.674
Oriental Avenue	26	2.522	214	2.082	2291	2.231	22903	2.233
Chance1	7	0.679	129	1.255	1248	1.215	12505	1.219
Vermont Avenue	24	2.328	240	2.335	2278	2.219	23150	2.257
Connecticut Avenue	21	2.037	234	2.277	2265	2.206	23419	2.283
Jail	67	6.499	644	6.266	6328	6.163	62172	6.061
St. Charles Place	22	2.134	266	2.588	2583	2.516	25952	2.530
Electric Company	29	2.813	238	2.316	2449	2.385	24695	2.407
States Avenue	20	1.940	260	2.530	2384	2.322	24108	2.350
Virginia Avenue	20	1.940	260	2.530	2593	2.525	24953	2.432
Pennsylvania Railroad	22	2.134	258	2.510	2831	2.757	28449	2.773
St. James Place	40	3.880	287	2.792	2841	2.767	28119	2.741
Community Chest2	29	2.813	256	2.491	2622	2.554	26107	2.545
Tennessee Avenue	27	2.619	293	2.851	2932	2.856	29323	2.858
New York Avenue	29	2.813	317	3.084	3040	2.961	30632	2.986
Free Parking	33	3.201	278	2.705	2866	2.791	28340	2.763
Kentucky Avenue	41	3.977	292	2.841	2901	2.825	27880	2.718
Chance2	12	1.164	119	1.158	1288	1.254	12832	1.251
Indiana Avenue	23	2.231	276	2.685	2727	2.656	26953	2.627
Illinois Avenue	23	2.231	262	2.549	2847	2.773	28821	2.810
B&O Railroad	33	3.201	286	2.783	2954	2.877	29149	2.841
Atlantic Avenue	20	1.940	292	2.841	2676	2.606	27404	2.671
Ventnor Avenue	22	2.134	284	2.763	2694	2.624	26655	2.598
Water Works	33	3.201	301	2.929	2928	2.852	29383	2.864
Marvin Gardens	24	2.328	265	2.578	2614	2.546	25529	2.489
Go To Jail	30	2.910	277	2.695	2677	2.607	25836	2.519
Pacific Avenue	29	2.813	247	2.403	2603	2.535	26399	2.573
North Carolina Avenue	25	2.425	228	2.218	2639	2.570	25618	2.497
Community Chest3	29	2.813	250	2.432	2299	2.239	23651	2.306
Pennsylvania Avenue	23	2.231	222	2.160	2422	2.359	24947	2.432
Short Line	26	2.522	261	2.539	2556	2.489	25634	2.499
Chance3	10	0.970	97	0.944	898	0.875	9240	0.901
Park Place	18	1.746	244	2.374	2226	2.168	21938	2.139
Luxury Tax	20	1.940	218	2.121	2107	2.052	22081	2.152
Boardwalk	29	2.813	271	2.637	2654	2.585	26507	2.584

		Strat	egy A	, Iteration	า 10			
	n=	1,000	n=	10,000	n=	100,000	n=1	1,000,000
Square	Landed	%	Landed	%	Landed	%	Landed	%
Go	33	3.232	311	3.034	3115	3.036	31203	3.041
Mediterranean Avenue	21	2.057	220	2.146	2063	2.011	21304	2.076
Community Chest1	20	1.959	175	1.707	1899	1.851	19002	1.852
Baltic Avenue	22	2.155	232	2.263	2254	2.197	21839	2.128
Income Tax	28	2.742	216	2.107	2441	2.379	23624	2.302
Reading Railroad	29	2.840	272	2.653	2710	2.641	27503	2.680
Oriental Avenue	27	2.644	236	2.302	2291	2.233	22927	2.234
Chance1	14	1.371	121	1.180	1208	1.177	12269	1.196
Vermont Avenue	20	1.959	254	2.478	2258	2.201	23162	2.257
Connecticut Avenue	20	1.959	240	2.341	2309	2.251	23134	2.255
Jail	60	5.877	607	5.921	6235	6.077	62518	6.093
St. Charles Place	35	3.428	261	2.546	2586	2.520	26102	2.544
Electric Company	25	2.449	273	2.663	2527	2.463	25051	2.441
States Avenue	22	2.155	235	2.292	2380	2.320	23845	2.324
Virginia Avenue	33	3.232	248	2.419	2560	2.495	24995	2.436
Pennsylvania Railroad	26	2.547	314	3.063	2897	2.824	28125	2.741
St. James Place	24	2.351	278	2.712	2740	2.671	28072	2.736
Community Chest2	32	3.134	234	2.283	2574	2.509	26034	2.537
Tennessee Avenue	25	2.449	267	2.605	2944	2.869	29272	2.853
New York Avenue	25	2.449	324	3.161	3157	3.077	30909	3.012
Free Parking	36	3.526	286	2.790	2753	2.683	28386	2.766
Kentucky Avenue	19	1.861	276	2.692	2779	2.709	28227	2.751
Chance2	18	1.763	141	1.375	1288	1.255	13045	1.271
Indiana Avenue	27	2.644	271	2.644	2710	2.641	27198	2.651
Illinois Avenue	33	3.232	272	2.653	2866	2.793	28563	2.784
B&O Railroad	27	2.644	291	2.839	2934	2.860	29138	2.840
Atlantic Avenue	23	2.253	263	2.566	2674	2.606	26945	2.626
Ventnor Avenue	30	2.938	270	2.634	2663	2.596	26666	2.599
Water Works	25	2.449	279	2.722	2957	2.882	29543	2.879
Marvin Gardens	17	1.665	248	2.419	2583	2.518	25912	2.525
Go To Jail	20	1.959	250	2.439	2598	2.532	26080	2.542
Pacific Avenue	29	2.840	284	2.770	2683	2.615	26566	2.589
North Carolina Avenue	26	2.547	238	2.322	2496	2.433	25511	2.486
Community Chest3	23	2.253	223	2.175	2334	2.275	23716	2.311
Pennsylvania Avenue	25	2.449	268	2.614	2492	2.429	24554	2.393
Short Line	26	2.547	273	2.663	2585	2.520	25760	2.511
Chance3	9	0.881	99	0.966	959	0.935	9243	0.901
Park Place	26	2.547	201	1.961	2172	2.117	21759	2.121
Luxury Tax	17	1.665	234	2.283	2220	2.164	21804	2.125
Boardwalk	24	2.351	266	2.595	2705	2.636	26575	2.590

		Strate	egy B,	Iteratio	า 1			
	n=1,	000	n=1	10,000	n=1	.00,000	n=1,	,000,000
Square	Landed	%	Landed	%	Landed	%	Landed	%
Go	30	2.910	307	2.989	3131	3.053	31167	3.038
Mediterranean Avenue	25	2.425	196	1.908	2131	2.078	21416	2.087
Community Chest1	19	1.843	185	1.801	1900	1.853	19074	1.859
Baltic Avenue	23	2.231	204	1.986	2175	2.121	21811	2.126
Income Tax	24	2.328	237	2.308	2405	2.345	23588	2.299
Reading Railroad	25	2.425	282	2.746	2760	2.691	27677	2.697
Oriental Avenue	25	2.425	243	2.366	2218	2.163	22798	2.222
Chance1	16	1.552	128	1.246	1293	1.261	12264	1.195
Vermont Avenue	24	2.328	214	2.084	2414	2.354	23038	2.245
Connecticut Avenue	20	1.940	229	2.230	2290	2.233	23181	2.259
Jail	63	6.111	635	6.183	6167	6.013	62513	6.093
St. Charles Place	30	2.910	273	2.658	2608	2.543	25798	2.514
Electric Company	25	2.425	224	2.181	2435	2.374	25098	2.446
States Avenue	21	2.037	254	2.473	2433	2.372	24280	2.366
Virginia Avenue	33	3.201	266	2.590	2545	2.482	25073	2.444
Pennsylvania Railroad	26	2.522	270	2.629	2833	2.762	27969	2.726
St. James Place	24	2.328	293	2.853	2832	2.761	28098	2.739
Community Chest2	25	2.425	252	2.454	2582	2.518	26040	2.538
Tennessee Avenue	19	1.843	300	2.921	2837	2.766	29303	2.856
New York Avenue	30	2.910	291	2.833	3126	3.048	30845	3.006
Free Parking	26	2.522	278	2.707	2930	2.857	28505	2.778
Kentucky Avenue	38	3.686	305	2.970	2827	2.757	28270	2.755
Chance2	13	1.261	120	1.168	1319	1.286	12992	1.266
Indiana Avenue	23	2.231	250	2.434	2680	2.613	27066	2.638
Illinois Avenue	38	3.686	300	2.921	2710	2.642	28745	2.802
B&O Railroad	29	2.813	313	3.048	2919	2.846	29005	2.827
Atlantic Avenue	28	2.716	266	2.590	2855	2.784	26994	2.631
Ventnor Avenue	17	1.649	277	2.697	2642	2.576	26709	2.603
Water Works	32	3.104	295	2.872	2986	2.912	29441	2.869
Marvin Gardens	23	2.231	240	2.337	2556	2.492	25746	2.509
Go To Jail	30	2.910	269	2.619	2556	2.492	26035	2.537
Pacific Avenue	25	2.425	272	2.648	2584	2.520	26286	2.562
North Carolina Avenue	24	2.328	257	2.502	2593	2.528	25617	2.497
Community Chest3	23	2.231	230	2.240	2271	2.214	23757	2.315
Pennsylvania Avenue	26	2.522	244	2.376	2481	2.419	24786	2.416
Short Line	26	2.522	257	2.502	2634	2.568	25761	2.511
Chance3	6	0.582	83	0.808	925	0.902	9211	0.898
Park Place	27	2.619	228	2.220	2177	2.123	21809	2.126
Luxury Tax	21	2.037	221	2.152	2180	2.126	21772	2.122
Boardwalk	29	2.813	282	2.746	2617	2.552	26498	2.583

		Strate	egy B,	Iteratio	n 2			
	n=1,0			10,000		.00,000	n=1,	.000,000
Square	Landed	%	Landed	%	Landed	%	Landed	%
Go	32	3.137	301	2.926	3186	3.108	31565	3.076
Mediterranean Avenue	19	1.863	230	2.236	2095	2.044	21395	2.085
Community Chest1	17	1.667	175	1.701	1950	1.902	19049	1.856
Baltic Avenue	21	2.059	226	2.197	2174	2.121	21947	2.139
Income Tax	24	2.353	208	2.022	2331	2.274	23285	2.269
Reading Railroad	25	2.451	280	2.722	2784	2.716	27519	2.682
Oriental Avenue	30	2.941	222	2.158	2248	2.193	22741	2.216
Chance1	13	1.275	118	1.147	1253	1.222	12240	1.193
Vermont Avenue	24	2.353	227	2.206	2305	2.249	23466	2.287
Connecticut Avenue	26	2.549	227	2.206	2336	2.279	23173	2.258
Jail	52	5.098	653	6.347	6100	5.951	62387	6.079
St. Charles Place	22	2.157	245	2.381	2634	2.570	25952	2.529
Electric Company	26	2.549	238	2.313	2473	2.413	24835	2.420
States Avenue	30	2.941	228	2.216	2373	2.315	24043	2.343
Virginia Avenue	26	2.549	264	2.566	2453	2.393	24811	2.418
Pennsylvania Railroad	27	2.647	302	2.935	2857	2.787	28437	2.771
St. James Place	19	1.863	281	2.731	2822	2.753	27812	2.710
Community Chest2	25	2.451	265	2.576	2621	2.557	26174	2.551
Tennessee Avenue	28	2.745	301	2.926	2882	2.812	29414	2.866
New York Avenue	32	3.137	319	3.101	3056	2.981	30819	3.003
Free Parking	26	2.549	258	2.508	2812	2.743	28485	2.776
Kentucky Avenue	28	2.745	284	2.760	2790	2.722	28148	2.743
Chance2	10	0.980	123	1.196	1358	1.325	13073	1.274
Indiana Avenue	26	2.549	277	2.692	2723	2.657	27020	2.633
Illinois Avenue	33	3.235	317	3.081	2814	2.745	28749	2.801
B&O Railroad	29	2.843	289	2.809	2990	2.917	28992	2.825
Atlantic Avenue	25	2.451	262	2.547	2696	2.630	27351	2.665
Ventnor Avenue	27	2.647	252	2.449	2683	2.618	26810	2.612
Water Works	38	3.725	321	3.120	2946	2.874	29425	2.867
Marvin Gardens	27	2.647	265	2.576	2591	2.528	25389	2.474
Go To Jail	19	1.863	287	2.790	2499	2.438	26225	2.555
Pacific Avenue	28	2.745	283	2.751	2634	2.570	26270	2.560
North Carolina Avenue	24	2.353	254	2.469	2617	2.553	25891	2.523
Community Chest3	35	3.431	235	2.284	2380	2.322	23672	2.307
Pennsylvania Avenue	19	1.863	237	2.304	2423	2.364	24822	2.419
Short Line	22	2.157	229	2.226	2639	2.575	25602	2.495
Chance3	10	0.980	93	0.904	889	0.867	9262	0.903
Park Place	24	2.353	202	1.963	2245	2.190	21776	2.122
Luxury Tax	27	2.647	237	2.304	2212	2.158	21625	2.107
Boardwalk	25	2.451	273	2.654	2626	2.562	26575	2.590

		Strate	egy B,	Iteratio	า 3			
	n=1,			L0,000		.00,000	n=1,	000,000
Square	Landed	%	Landed	%	Landed	%	Landed	%
Go	36	3.509	316	3.081	3137	3.059	31472	3.068
Mediterranean Avenue	23	2.242	206	2.009	2135	2.082	21405	2.087
Community Chest1	10	0.975	174	1.697	1949	1.900	18750	1.828
Baltic Avenue	25	2.437	219	2.136	2171	2.117	21963	2.141
Income Tax	27	2.632	259	2.526	2335	2.277	23712	2.311
Reading Railroad	30	2.924	279	2.721	2703	2.636	27287	2.660
Oriental Avenue	19	1.852	226	2.204	2301	2.244	22921	2.234
Chance1	9	0.877	124	1.209	1255	1.224	12620	1.230
Vermont Avenue	24	2.339	228	2.223	2282	2.225	23054	2.247
Connecticut Avenue	26	2.534	222	2.165	2402	2.342	23009	2.243
Jail	62	6.043	634	6.182	6184	6.030	62325	6.075
St. Charles Place	29	2.827	273	2.662	2622	2.557	26035	2.538
Electric Company	23	2.242	235	2.292	2500	2.438	24903	2.427
States Avenue	16	1.559	245	2.389	2382	2.323	24196	2.359
Virginia Avenue	19	1.852	237	2.311	2504	2.442	24831	2.420
Pennsylvania Railroad	33	3.216	253	2.467	2743	2.675	28064	2.736
St. James Place	30	2.924	279	2.721	2854	2.783	28071	2.736
Community Chest2	24	2.339	249	2.428	2548	2.484	25982	2.533
Tennessee Avenue	35	3.411	305	2.974	2947	2.873	29207	2.847
New York Avenue	38	3.704	300	2.925	3068	2.991	31162	3.038
Free Parking	25	2.437	288	2.808	2868	2.796	28561	2.784
Kentucky Avenue	25	2.437	295	2.877	2809	2.739	28047	2.734
Chance2	14	1.365	136	1.326	1273	1.241	12891	1.257
Indiana Avenue	32	3.119	285	2.779	2666	2.599	27199	2.651
Illinois Avenue	30	2.924	259	2.526	2794	2.724	28610	2.789
B&O Railroad	27	2.632	282	2.750	2983	2.909	29073	2.834
Atlantic Avenue	26	2.534	284	2.769	2761	2.692	27293	2.660
Ventnor Avenue	27	2.632	242	2.360	2633	2.567	26653	2.598
Water Works	34	3.314	304	2.964	3007	2.932	29670	2.892
Marvin Gardens	26	2.534	298	2.906	2550	2.486	25613	2.497
Go To Jail	25	2.437	254	2.477	2558	2.494	25871	2.522
Pacific Avenue	23	2.242	271	2.643	2592	2.527	25866	2.521
North Carolina Avenue	29	2.827	269	2.623	2631	2.565	25841	2.519
Community Chest3	28	2.729	218	2.126	2371	2.312	23847	2.325
Pennsylvania Avenue	21	2.047	246	2.399	2547	2.483	24625	2.400
Short Line	21	2.047	242	2.360	2555	2.491	25898	2.524
Chance3	9	0.877	93	0.907	905	0.882	9053	0.882
Park Place	27	2.632	216	2.106	2252	2.196	21925	2.137
Luxury Tax	19	1.852	229	2.233	2138	2.085	21838	2.129
Boardwalk	20	1.949	281	2.740	2644	2.578	26529	2.586

	<u> </u>	Strate	gy B, I	teration	1 4			
	n=1,			n=10,000		.00,000	n=1,	000,000
Square	Landed	%	Landed	%	Landed	%	Landed	%
Go	27	2.642	331	3.231	3194	3.111	31438	3.064
Mediterranean Avenue	28	2.740	210	2.050	2116	2.061	21372	2.083
Community Chest1	21	2.055	189	1.845	1944	1.893	19121	1.864
Baltic Avenue	26	2.544	216	2.108	2185	2.128	21786	2.123
Income Tax	22	2.153	210	2.050	2389	2.327	23438	2.284
Reading Railroad	22	2.153	249	2.430	2679	2.609	27273	2.658
Oriental Avenue	26	2.544	261	2.547	2239	2.181	23167	2.258
Chance1	13	1.272	131	1.279	1289	1.255	12511	1.219
Vermont Avenue	30	2.935	242	2.362	2314	2.254	23352	2.276
Connecticut Avenue	20	1.957	241	2.352	2293	2.233	22973	2.239
Jail	54	5.284	615	6.002	6275	6.112	62432	6.085
St. Charles Place	23	2.250	238	2.323	2565	2.498	25878	2.522
Electric Company	28	2.740	271	2.645	2518	2.453	24976	2.434
States Avenue	23	2.250	237	2.313	2399	2.337	24114	2.350
Virginia Avenue	24	2.348	255	2.489	2522	2.456	24759	2.413
Pennsylvania Railroad	39	3.816	242	2.362	2920	2.844	28180	2.747
St. James Place	27	2.642	293	2.860	2800	2.727	28175	2.746
Community Chest2	20	1.957	274	2.674	2562	2.495	25835	2.518
Tennessee Avenue	30	2.935	307	2.996	2927	2.851	29368	2.862
New York Avenue	25	2.446	285	2.782	2996	2.918	30817	3.004
Free Parking	31	3.033	298	2.908	2929	2.853	28582	2.786
Kentucky Avenue	31	3.033	269	2.625	2804	2.731	28364	2.765
Chance2	8	0.783	132	1.288	1274	1.241	12735	1.241
Indiana Avenue	35	3.425	270	2.635	2750	2.679	26960	2.628
Illinois Avenue	34	3.327	264	2.577	2837	2.763	28671	2.795
B&O Railroad	23	2.250	297	2.899	2927	2.851	29231	2.849
Atlantic Avenue	33	3.229	282	2.752	2698	2.628	26975	2.629
Ventnor Avenue	22	2.153	275	2.684	2679	2.609	26620	2.595
Water Works	32	3.131	277	2.703	2942	2.866	29834	2.908
Marvin Gardens	22	2.153	268	2.616	2540	2.474	25419	2.478
Go To Jail	21	2.055	245	2.391	2668	2.599	25977	2.532
Pacific Avenue	30	2.935	254	2.479	2640	2.571	26027	2.537
North Carolina Avenue	27	2.642	269	2.625	2548	2.482	25841	2.519
Community Chest3	30	2.935	242	2.362	2399	2.337	23668	2.307
Pennsylvania Avenue	19	1.859	248	2.420	2451	2.387	24998	2.437
Short Line	34	3.327	246	2.401	2518	2.453	25821	2.517
Chance3	4	0.391	97	0.947	944	0.919	9247	0.901
Park Place	19	1.859	240	2.342	2155	2.099	21669	2.112
Luxury Tax	17	1.663	213	2.079	2156	2.100	21696	2.115
Boardwalk	22	2.153	263	2.567	2684	2.614	26678	2.600

		Strate	egy B,	Iteratio	<u> </u>			
	n=1,			10,000		.00,000	n=1,	.000,000
Square	Landed	%	Landed	%	Landed	%	Landed	%
Go	34	3.291	338	3.295	3031	2.956	31169	3.038
Mediterranean Avenue	20	1.936	209	2.037	2233	2.178	21522	2.098
Community Chest1	16	1.549	169	1.647	1899	1.852	18999	1.852
Baltic Avenue	18	1.742	241	2.349	2157	2.104	22000	2.144
Income Tax	22	2.130	224	2.184	2417	2.357	23454	2.286
Reading Railroad	23	2.227	276	2.691	2725	2.657	27027	2.634
Oriental Avenue	22	2.130	239	2.330	2296	2.239	23011	2.243
Chance1	11	1.065	125	1.219	1223	1.193	12576	1.226
Vermont Avenue	22	2.130	231	2.252	2379	2.320	23351	2.276
Connecticut Avenue	25	2.420	230	2.242	2306	2.249	22843	2.226
Jail	67	6.486	600	5.849	6200	6.046	62351	6.077
St. Charles Place	19	1.839	264	2.574	2544	2.481	25991	2.533
Electric Company	23	2.227	255	2.486	2557	2.494	24746	2.412
States Avenue	33	3.195	225	2.193	2466	2.405	24016	2.341
Virginia Avenue	26	2.517	255	2.486	2521	2.459	24989	2.435
Pennsylvania Railroad	39	3.775	301	2.934	2749	2.681	28390	2.767
St. James Place	21	2.033	287	2.798	2697	2.630	28122	2.741
Community Chest2	38	3.679	245	2.388	2625	2.560	25963	2.530
Tennessee Avenue	28	2.711	290	2.827	2808	2.738	29237	2.849
New York Avenue	25	2.420	294	2.866	3126	3.049	30627	2.985
Free Parking	33	3.195	267	2.603	2802	2.733	28581	2.785
Kentucky Avenue	28	2.711	280	2.730	2821	2.751	28163	2.745
Chance2	14	1.355	131	1.277	1299	1.267	12866	1.254
Indiana Avenue	23	2.227	267	2.603	2736	2.668	27273	2.658
Illinois Avenue	31	3.001	302	2.944	3027	2.952	28843	2.811
B&O Railroad	33	3.195	298	2.905	2807	2.737	29156	2.842
Atlantic Avenue	32	3.098	250	2.437	2716	2.649	27138	2.645
Ventnor Avenue	18	1.742	272	2.652	2611	2.546	26696	2.602
Water Works	35	3.388	284	2.769	3000	2.926	29561	2.881
Marvin Gardens	25	2.420	270	2.632	2538	2.475	25712	2.506
Go To Jail	32	3.098	257	2.505	2541	2.478	26068	2.541
Pacific Avenue	21	2.033	237	2.310	2648	2.582	26469	2.580
North Carolina Avenue	20	1.936	309	3.012	2629	2.564	25713	2.506
Community Chest3	23	2.227	223	2.174	2324	2.266	23687	2.309
Pennsylvania Avenue	33	3.195	243	2.369	2508	2.446	24764	2.413
Short Line	30	2.904	260	2.535	2529	2.466	25617	2.497
Chance3	10	0.968	84	0.819	936	0.913	9093	0.886
Park Place	23	2.227	233	2.271	2090	2.038	21763	2.121
Luxury Tax	17	1.646	238	2.320	2282	2.225	21916	2.136
Boardwalk	20	1.936	255	2.486	2739	2.671	26606	2.593

		Strate	egy B,	Iteratio	า 6			
	n=1,0	000	n=10,000		n=1	.00,000	n=1,	.000,000
Square	Landed	%	Landed	%	Landed	%	Landed	%
Go	32	3.116	318	3.105	3148	3.069	31086	3.030
Mediterranean Avenue	28	2.726	203	1.982	2247	2.191	21290	2.075
Community Chest1	12	1.168	198	1.933	1836	1.790	19199	1.872
Baltic Avenue	22	2.142	220	2.148	2248	2.192	22163	2.160
Income Tax	24	2.337	254	2.480	2360	2.301	23500	2.291
Reading Railroad	25	2.434	281	2.744	2706	2.638	27277	2.659
Oriental Avenue	30	2.921	226	2.207	2205	2.150	22807	2.223
Chance1	10	0.974	115	1.123	1234	1.203	12463	1.215
Vermont Avenue	28	2.726	232	2.265	2306	2.248	23322	2.273
Connecticut Avenue	18	1.753	233	2.275	2353	2.294	23141	2.256
Jail	55	5.355	596	5.819	6213	6.057	62151	6.059
St. Charles Place	19	1.850	267	2.607	2626	2.560	26005	2.535
Electric Company	24	2.337	251	2.451	2518	2.455	24930	2.430
States Avenue	27	2.629	227	2.216	2460	2.398	24034	2.343
Virginia Avenue	31	3.019	276	2.695	2415	2.354	25104	2.447
Pennsylvania Railroad	25	2.434	290	2.831	2780	2.710	28296	2.758
St. James Place	29	2.824	272	2.656	2829	2.758	27894	2.719
Community Chest2	26	2.532	245	2.392	2593	2.528	25993	2.534
Tennessee Avenue	34	3.311	280	2.734	3021	2.945	29111	2.838
New York Avenue	32	3.116	300	2.929	3081	3.004	30705	2.993
Free Parking	32	3.116	294	2.871	2828	2.757	28632	2.791
Kentucky Avenue	23	2.240	271	2.646	2703	2.635	27998	2.729
Chance2	8	0.779	119	1.162	1305	1.272	12910	1.258
Indiana Avenue	29	2.824	265	2.587	2692	2.624	27278	2.659
Illinois Avenue	30	2.921	311	3.037	2920	2.847	28793	2.807
B&O Railroad	24	2.337	301	2.939	2966	2.892	29074	2.834
Atlantic Avenue	30	2.921	258	2.519	2744	2.675	26755	2.608
Ventnor Avenue	36	3.505	263	2.568	2626	2.560	26994	2.631
Water Works	23	2.240	294	2.871	2988	2.913	29437	2.870
Marvin Gardens	28	2.726	244	2.382	2523	2.460	25764	2.511
Go To Jail	26	2.532	241	2.353	2574	2.509	25843	2.519
Pacific Avenue	31	3.019	263	2.568	2588	2.523	26340	2.568
North Carolina Avenue	18	1.753	266	2.597	2610	2.544	25814	2.516
Community Chest3	26	2.532	226	2.207	2383	2.323	23652	2.306
Pennsylvania Avenue	32	3.116	263	2.568	2522	2.459	24739	2.412
Short Line	28	2.726	261	2.548	2536	2.472	25773	2.512
Chance3	14	1.363	106	1.035	898	0.875	9094	0.886
Park Place	15	1.461	216	2.109	2231	2.175	21966	2.141
Luxury Tax	14	1.363	214	2.089	2174	2.119	21817	2.127
Boardwalk	29	2.824	282	2.753	2585	2.520	26700	2.603

		Strate	egy B,	Iteratio	 ո 7					
n=1,000										
Square	Landed	%	Landed	%	Landed	%	Landed	%		
Go	30	2.918	311	3.026	3121	3.043	31089	3.030		
Mediterranean Avenue	16	1.556	244	2.374	2182	2.128	21667	2.112		
Community Chest1	18	1.751	176	1.713	1794	1.749	19015	1.853		
Baltic Avenue	20	1.946	216	2.102	2161	2.107	21892	2.134		
Income Tax	20	1.946	252	2.452	2371	2.312	23635	2.304		
Reading Railroad	35	3.405	265	2.579	2689	2.622	27344	2.665		
Oriental Avenue	32	3.113	225	2.190	2338	2.280	22890	2.231		
Chance1	11	1.070	112	1.090	1252	1.221	12246	1.194		
Vermont Avenue	24	2.335	235	2.287	2323	2.265	23224	2.264		
Connecticut Avenue	15	1.459	227	2.209	2335	2.277	23329	2.274		
Jail	56	5.447	650	6.325	6150	5.997	62210	6.064		
St. Charles Place	30	2.918	237	2.306	2550	2.486	26104	2.544		
Electric Company	27	2.626	260	2.530	2522	2.459	24780	2.415		
States Avenue	22	2.140	249	2.423	2405	2.345	24044	2.344		
Virginia Avenue	19	1.848	264	2.569	2457	2.396	24899	2.427		
Pennsylvania Railroad	36	3.502	258	2.511	2861	2.790	28044	2.733		
St. James Place	32	3.113	275	2.676	2755	2.686	28166	2.745		
Community Chest2	19	1.848	262	2.550	2648	2.582	26093	2.543		
Tennessee Avenue	30	2.918	285	2.773	2910	2.837	29377	2.863		
New York Avenue	29	2.821	310	3.017	3073	2.996	30567	2.979		
Free Parking	28	2.724	284	2.764	2854	2.783	28401	2.768		
Kentucky Avenue	36	3.502	299	2.910	2778	2.709	28157	2.744		
Chance2	14	1.362	133	1.294	1255	1.224	12949	1.262		
Indiana Avenue	26	2.529	294	2.861	2710	2.642	27292	2.660		
Illinois Avenue	24	2.335	283	2.754	3014	2.939	28493	2.777		
B&O Railroad	29	2.821	264	2.569	2875	2.803	29098	2.836		
Atlantic Avenue	32	3.113	275	2.676	2781	2.712	27309	2.662		
Ventnor Avenue	30	2.918	248	2.413	2639	2.573	26818	2.614		
Water Works	21	2.043	300	2.919	2926	2.853	29695	2.894		
Marvin Gardens	22	2.140	268	2.608	2505	2.442	25650	2.500		
Go To Jail	27	2.626	275	2.676	2558	2.494	25973	2.532		
Pacific Avenue	34	3.307	278	2.705	2624	2.559	26196	2.553		
North Carolina Avenue	28	2.724	255	2.482	2620	2.555	25863	2.521		
Community Chest3	18	1.751	227	2.209	2417	2.357	23541	2.295		
Pennsylvania Avenue	31	3.016	231	2.248	2531	2.468	24938	2.431		
Short Line	23	2.237	258	2.511	2594	2.529	25545	2.490		
Chance3	9	0.875	90	0.876	893	0.871	9133	0.890		
Park Place	24	2.335	244	2.374	2224	2.169	21927	2.137		
Luxury Tax	21	2.043	196	1.907	2177	2.123	21832	2.128		
Boardwalk	30	2.918		2.540		2.620		2.588		

		Strate	egy B,	Iteration	า 8			
	n=1,	.000,000						
Square	Landed	%	Landed	%	Landed	%	Landed	%
Go	34	3.320	316	3.069	3142	3.060	31282	3.049
Mediterranean Avenue	22	2.148	200	1.942	2129	2.073	21180	2.064
Community Chest1	18	1.758	197	1.913	1888	1.839	18920	1.844
Baltic Avenue	20	1.953	222	2.156	2159	2.103	21799	2.125
Income Tax	26	2.539	238	2.311	2416	2.353	23914	2.331
Reading Railroad	27	2.637	280	2.719	2704	2.633	27579	2.688
Oriental Avenue	24	2.344	221	2.146	2229	2.171	22820	2.224
Chance1	13	1.270	126	1.224	1251	1.218	12102	1.179
Vermont Avenue	23	2.246	231	2.243	2273	2.214	23244	2.265
Connecticut Avenue	16	1.563	237	2.301	2282	2.222	23060	2.247
Jail	64	6.250	650	6.312	6371	6.204	62431	6.085
St. Charles Place	24	2.344	237	2.301	2589	2.521	26038	2.538
Electric Company	25	2.441	239	2.321	2491	2.426	24778	2.415
States Avenue	27	2.637	254	2.466	2306	2.246	24123	2.351
Virginia Avenue	15	1.465	237	2.301	2561	2.494	24926	2.429
Pennsylvania Railroad	37	3.613	292	2.836	2856	2.781	28277	2.756
St. James Place	31	3.027	296	2.874	2791	2.718	28127	2.741
Community Chest2	29	2.832	265	2.573	2602	2.534	26093	2.543
Tennessee Avenue	27	2.637	295	2.865	3010	2.931	29248	2.851
New York Avenue	29	2.832	317	3.078	2995	2.917	30803	3.002
Free Parking	27	2.637	288	2.797	2857	2.782	28509	2.778
Kentucky Avenue	25	2.441	269	2.612	2907	2.831	27944	2.723
Chance2	14	1.367	110	1.068	1285	1.251	12906	1.258
Indiana Avenue	24	2.344	264	2.564	2740	2.668	27213	2.652
Illinois Avenue	35	3.418	279	2.709	2854	2.779	28789	2.806
B&O Railroad	30	2.930	319	3.098	2906	2.830	29094	2.836
Atlantic Avenue	23	2.246	249	2.418	2699	2.628	27022	2.634
Ventnor Avenue	25	2.441	272	2.641	2701	2.630	26692	2.601
Water Works	28	2.734	338	3.282	2928	2.851	29430	2.868
Marvin Gardens	30	2.930	266	2.583	2581	2.513	25765	2.511
Go To Jail	23	2.246	297	2.884	2686	2.616	26058	2.540
Pacific Avenue	38	3.711	246	2.389	2612	2.544	26331	2.566
North Carolina Avenue	26	2.539	230	2.233	2568	2.501	25761	2.511
Community Chest3	22	2.148	230	2.233	2328	2.267	23552	2.295
Pennsylvania Avenue	26	2.539	256	2.486	2560	2.493	24932	2.430
Short Line	15	1.465	241	2.340	2535	2.469	25878	2.522
Chance3	5	0.488	89	0.864	945	0.920	9119	0.889
Park Place	23	2.246	228	2.214	2184	2.127	21658	2.111
Luxury Tax	16	1.563	220	2.136	2115	2.060	22004	2.145
Boardwalk	38	3.711	257	2.496	2651	2.582	26658	2.598

		Strate	egy B,	Iteration	า 9			
	n=1,			10,000		.00,000	n=1,	000,000
Square	Landed	%	Landed	%	Landed	%	Landed	%
Go	33	3.204	281	2.737	3136	3.054	30876	3.009
Mediterranean Avenue	20	1.942	201	1.958	2136	2.080	21607	2.106
Community Chest1	17	1.650	191	1.861	1945	1.894	19019	1.854
Baltic Avenue	28	2.718	211	2.055	2173	2.116	21997	2.144
Income Tax	23	2.233	245	2.387	2372	2.310	23666	2.306
Reading Railroad	31	3.010	285	2.776	2710	2.639	27555	2.685
Oriental Avenue	20	1.942	232	2.260	2219	2.161	22768	2.219
Chance1	14	1.359	129	1.257	1206	1.175	12255	1.194
Vermont Avenue	27	2.621	248	2.416	2300	2.240	23271	2.268
Connecticut Avenue	20	1.942	221	2.153	2347	2.286	23323	2.273
Jail	66	6.408	613	5.971	6397	6.230	62596	6.100
St. Charles Place	19	1.845	266	2.591	2604	2.536	25846	2.519
Electric Company	23	2.233	238	2.318	2396	2.333	24607	2.398
States Avenue	23	2.233	244	2.377	2387	2.325	24020	2.341
Virginia Avenue	31	3.010	241	2.348	2502	2.437	25215	2.457
Pennsylvania Railroad	27	2.621	285	2.776	2870	2.795	28293	2.757
St. James Place	31	3.010	271	2.640	2761	2.689	28052	2.734
Community Chest2	23	2.233	261	2.542	2683	2.613	25730	2.508
Tennessee Avenue	30	2.913	315	3.068	2860	2.785	29247	2.850
New York Avenue	30	2.913	346	3.370	3089	3.008	30971	3.018
Free Parking	25	2.427	284	2.766	2893	2.818	28821	2.809
Kentucky Avenue	28	2.718	257	2.503	2761	2.689	27881	2.717
Chance2	10	0.971	132	1.286	1310	1.276	12983	1.265
Indiana Avenue	34	3.301	276	2.688	2726	2.655	27166	2.648
Illinois Avenue	30	2.913	276	2.688	2916	2.840	28468	2.774
B&O Railroad	32	3.107	294	2.864	2994	2.916	29101	2.836
Atlantic Avenue	24	2.330	259	2.523	2673	2.603	27260	2.657
Ventnor Avenue	25	2.427	270	2.630	2689	2.619	26732	2.605
Water Works	27	2.621	300	2.922	2888	2.813	29433	2.868
Marvin Gardens	25	2.427	262	2.552	2559	2.492	26032	2.537
Go To Jail	29	2.816	265	2.581	2678	2.608	26086	2.542
Pacific Avenue	30	2.913	275	2.679	2648	2.579	26076	2.541
North Carolina Avenue	35	3.398	243	2.367	2604	2.536	25715	2.506
Community Chest3	30	2.913	236	2.299	2418	2.355	23364	2.277
Pennsylvania Avenue	19	1.845	239	2.328	2418	2.355	24615	2.399
Short Line	13	1.262	244	2.377	2540	2.474	25966	2.531
Chance3	7	0.680	84	0.818	917	0.893	9184	0.895
Park Place	23	2.233	227	2.211	2213	2.155	21986	2.143
Luxury Tax	18	1.748	215	2.094	2112	2.057	21765	2.121
Boardwalk	30	2.913	304	2.961	2629	2.560	26539	2.586

	_			teration			_	
		,000		10,000		.00,000		000,000
Square	Landed	%	Landed	%	Landed	%	Landed	%
Go	34	3.269	314	3.064	3188	3.109	31009	3.023
Mediterranean Avenue	20	1.923	210	2.049	2218	2.163	21564	2.102
Community Chest1	16	1.538	204	1.990	1894	1.847	19140	1.866
Baltic Avenue	17	1.635	222	2.166	2172	2.118	21943	2.139
Income Tax	32	3.077	251	2.449	2417	2.357	23587	2.299
Reading Railroad	22	2.115	260	2.537	2694	2.627	27304	2.662
Oriental Avenue	22	2.115	219	2.137	2291	2.234	22894	2.232
Chance1	11	1.058	113	1.103	1180	1.151	12512	1.220
Vermont Avenue	24	2.308	238	2.322	2304	2.247	23169	2.258
Connecticut Avenue	15	1.442	257	2.508	2366	2.307	23295	2.271
Jail	75	7.212	608	5.932	6235	6.080	62394	6.082
St. Charles Place	28	2.692	271	2.644	2614	2.549	25619	2.497
Electric Company	28	2.692	272	2.654	2496	2.434	24930	2.430
States Avenue	21	2.019	227	2.215	2325	2.267	23997	2.339
Virginia Avenue	23	2.212	254	2.478	2493	2.431	25034	2.440
Pennsylvania Railroad	34	3.269	269	2.625	2872	2.801	28386	2.767
St. James Place	34	3.269	282	2.751	2826	2.756	28201	2.749
Community Chest2	24	2.308	263	2.566	2590	2.526	25990	2.533
Tennessee Avenue	24	2.308	296	2.888	2811	2.741	29291	2.855
New York Avenue	29	2.788	302	2.947	3004	2.929	30577	2.981
Free Parking	30	2.885	286	2.791	2864	2.793	28352	2.764
Kentucky Avenue	26	2.500	273	2.664	2889	2.817	28286	2.757
Chance2	15	1.442	122	1.190	1314	1.281	12933	1.261
Indiana Avenue	35	3.365	276	2.693	2758	2.689	27026	2.634
Illinois Avenue	30	2.885	271	2.644	2850	2.779	28658	2.794
B&O Railroad	29	2.788	292	2.849	2937	2.864	29143	2.841
Atlantic Avenue	21	2.019	282	2.751	2680	2.613	27101	2.642
Ventnor Avenue	21	2.019	255	2.488	2735	2.667	26512	2.584
Water Works	32	3.077	290	2.830	2954	2.881	29673	2.892
Marvin Gardens	29	2.788	269	2.625	2537	2.474	25695	2.505
Go To Jail	39	3.750	248	2.420	2550	2.487	25872	2.522
Pacific Avenue	21	2.019	263	2.566	2614	2.549	26452	2.578
North Carolina Avenue	29	2.788		2.517	2694	2.627	25749	2.510
Community Chest3	22	2.115	234	2.283	2388	2.329	23596	2.300
Pennsylvania Avenue	24	2.308		2.615	2424	2.364	24631	2.401
Short Line	25	2.404	228	2.225	2557	2.493	25754	2.510
Chance3	6	0.577		1.073	875	0.853	9087	0.886
Park Place	23	2.212	194	1.893	2154	2.100	21856	2.130
Luxury Tax	18	1.731	225	2.195	2202	2.147	22022	2.147
Boardwalk	32	3.077		2.664	2585	2.521	26639	2.597